

Application No.: 10/070,277  
Inventor: EHRHARDT et al.  
Reply to Office Action of 23 February 2006  
Docket No.: 50716

**Amendments to the Claims:**

- 1.-8. (canceled)
9. (currently amended) A method for screening herbicidally active substances which inhibit the activity of plant dihydroorotase, which comprises:
- generating, in a first step, dihydroorotase using a DNA sequence of SEQ ID NO: 1 or a DNA sequence having a homology of at least 60% with respect to SEQ ID NO: 1 and which encodes a protein which has the enzymatic activity of a dihydroorotase, and;
- in a second step, measuring the activity of the plant dihydroorotase in the presence and absence of a test substance.
10. (previously presented) A method as claimed in claim 9, wherein the plant dihydroorotase is measured in a high-throughput screening (HTS) assay.
- 11.-13. (canceled)
14. (currently amended) An assay system based on the expression of a DNA sequence of SEQ ID NO: 1 or a DNA sequence having a homology of at least 60% with SEQ ID NO: 1 and ~~which~~ encodes a protein ~~which has the~~ having an enzymatic activity of dihydroorotase, for identifying inhibitors of plant dihydroorotase, ~~which comprising:~~ comprises
- incubating the ~~enzyme protein~~ with a test ~~substrate~~ substance to be studied, and, after a suitable reaction time, determining the enzymatic activity of the ~~enzyme protein~~ in comparison with the activity of the protein in the absence of the test substance ~~uninhibited enzyme~~.

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15.-18. (canceled)

19. (previously presented) The method of claim 9 wherein the DNA sequence of SEQ ID NO: 1 encodes a protein which has the enzymatic activity of a dihydroorotase.
20. (previously presented) The method of claim 9, which comprises generating, in the first step, dihydroorotase using the DNA sequence of SEQ ID NO: 1.
21. (new) A method for screening herbicidally active substances which inhibit the activity of plant dihydroorotase, comprising:
  - generating, in a first step, dihydroorotase or a protein having the enzymatic activity of a dihydroorotase, and
  - in a second step, measuring activity of the plant dihydroorotase in the presence and absence of a test substance.
22. (new) The method of claim 9, wherein the DNA sequence has a homology of at least 80% with respect to SEQ ID NO: 1.
23. (new) The assay of claim 14, wherein the DNA sequence has a homology of at least 80% with respect to SEQ ID NO: 1.